## AGRICULTURAL COLLEGES.

### The Nature and Aim of the Educational Advantages They Offer.

By Hiram Hadley, A. M., President of the Agricultural College of New Mexico.

Colleges of agriculture and the mechanic arts owe their existence to the correct sentiment firmly entrenched in the intelligent public mind, that best results are most economically secured when well-developed muscle is guided by educated intellect.

This thought took practical shape in the United States by an act of congress approved July 2, 1862, entitled: "An act donating public lands to the several states and territores, which may provide colleges for the benefit of agriculture and the mechanic arts." The bill was introduced by Hon. Justin S. Morrill, of Vermont, himself a practical agriculturist.

Without reciting this act in full, its provisions include the following:

Section one donates to each state, for the endowment of an agricultural col-

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lege, thirty thousand acres of land for each senator and representative in congress.

Section 3 provides that the states shall pay all expenses of selection of lands, taxes, etc., so that the entire proceeds shall be applied without diminution to the purposes mentioned in the act.

Section 4 provides for the safe investment of the proceeds from sales of lands to constitute a perpetual fund, which shall remain forever undiminished for the "endowment, support, and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Section 5 provides the terms on which states may avail themselves of the benefits of this act. They must give their assent; must make good any losses of the fund; no portion of it can be used for purchase, erection, or repair of any building; an annual report must be made of progress made, etc.

The other portions of the act relate to the carrying out of the provisions cited above.

It will be observed that the benefits derived from this act apply to states only. Territories are debarred. Under its stimulating influence many of the states either established colleges of agriculture and mechanic arts or attachd such department to an existing institution of learning. Some of the states, in an unbusinesslike way, almost squandered

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his magnificent endowment; others carefully managed it. A large state with twenty representatives in congress, received land or script equal to 300,000 acres. Kansas, for example, with three representatives, received —from some cause—only about 83,000 acres, and yet her careful management has given her from this source, a productive cash endowment of over $500,000. Let these points stimulate New Mexico to hasten the day when she shall come into possession of this land grant and then husband it, and thus give to her college a grand endowment.

The next decided step in the progress of these institutions took shape in the passage, by congress, of an act approved March 2, 1887, familiarly known as the "Hatch act," entitled: "An act to establish agricultural experiment stations in connection with the colleges established in the several states under the provisions of an act approved July 2, 1862, and of the acts supplementary thereto."

Again, without quoting the act in full, I present only those portions pertinent to this article.

Its purpose—"It shall be the object and duty of said experiment station to conduct original researches, to verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotating crops as pursued under a varying series of crops; the capacity of new trees or plants for acclimation; the analysis of soils and waters; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaption and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments directly on the agricultural industry of the United States as may, in each case, be deemed advisable, having due regard to the varying conditions and needs of the respective states or territories."

The act provides for the publication

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of bulletins for the information of the people concerning experiments made. To defray the experiment department of the colleges, congress appropriates annually $15,000. The benefits of this appropriation are received by territories as well as by states.

The next step in congressional legislation in this direction is indicated by an act of congress approved August 30, 1890, for "the more complete endowment and support of colleges for the benefit of agriculture and the mechanic arts." The venerable Senator Morrill, in the eightieth year of his age, was the author of this bill. It provides from the sale of public lands, for the benefit of these colleges, an additional $15,000 for the year ended June 30, 1890, and increases said amount by $1,000 each year until the annual appropriation reaches $25,000, at which sum it remains, unless repealed by congress. The uses to which said appropriation may be applied are as follows: "To be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

So much for national legislation. The territory of New Mexico, by acts of the legislature, has accepted the conditions of the congressional acts and created an institution of learning known as the "Agricultural College and Experiment Station of New Mexico," and located the same at Las Cruces. Among other provisions of said acts are, that the college "shall be non-sectarian in character and devoted to practical instruction in agriculture, mechanic arts, natural sciences connected therewith, as well as a thorough course of instruction in all branches of learning

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bearing upon agriculture and other industrial pursuits. The course of instruction of the college hereby created shall embrace the English language, literature, mathematics, philosophy, civil engineering, chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, political, rural, and household economy; horticulture, moral philosophy, history, mechanics, and such other sciences and courses of instruction as shall be prescribed by the regents of this institution of learning."

The scope of the college is pretty well defined by the legislation creating it. So far as the territory is a party to the contract by virtue of which she becomes possessed of the funds supplied by the general government, she is under sacred obligation to use these funds for the purposes stipulated and for no others. This does not prohibit the territory from connecting or associating with said institution any department which the regents may deem proper, provided they do not apply the funds received from the government for purposes other than those for which they were appropriated.

The whole tenor of the national legislation is to endow institutions for the especial "liberal and practical education" of the laboring classes in the "various pursuits and professions of life," in contradistinction to those preparing for professional life. "The leading object shall be to teach such branches of learning as are related to agriculture and the mechanic arts, without excluding other scientific and classical studies and including military tactics."

The other scientific and classical

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studies are permissive. Military tactics and the other branches named are compulsory.

Whether correct or not, there is a very deeply seated conviction in the public mind that classical studies are not so directly conducive to the industrial world as the sciences and the living languages are.

The aid for these colleges is furnished on the condition that the beneficiaries shall supply suitable buildings and supplement the endowment in many ways. This is right. A state or territory that will not meet the government half way

AGRICULTURAL COLLEGE OF NEW MEXICO.

and supply buildings and other accommodations, is not worthy the endowment. Most of the states annually appropriate large sums to their agricultural colleges. Indiana has over $300,000 invested in buildings.

The range of learning has become so great that it is wise that different colleges shall undertake some selected line of work and devote its energies to it, leaving others to provide for other divisions. The field assigned to colleges of agriculture and mechanic arts is a broad one and embraces those great subdivisions of theoretical and applied science, an acquaintance with which has already given to American industry its great triumphs in utilizing the forces of nature. It is sufficiently great in extent and grand in its purpose to gratify the pride and the ambition of any cultured and enterprising people. In the language of Dr. Gregory, ex-re-

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gent of the great industrial university of Illinois, "The problem is to unite scientific and art education—to make true scholars while we make practical artisans, and do this, not in one or two arts, but in the whole round of human industries."

The foundation of the work proposed to be done is laid in a theoretical and practical knowledge of the great sciences—mathematics, physics, botany, geology, mineralogy, etc.; in a ready, fluent, and practical use of the English language, and an acquaintance with such modern languages, chiefly for commercial purposes, as the special wants of the particular college may demand. Fortunately for New Mexico, the similar institutions already established have pretty clearly outlined the course and have settled the question as to what congress intended we shall do.

The courses of study offered by these institutions are such as to give to young men and young women a culture as deep and as varied as those institutions that train more especially for the professions. At the same time this culture is of a much more practical nature—the

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word "practical" being used in its popular sense.

It is not the purpose nor the intention to teach the "various pursuits and professions in life" in the sense that students will serve a complete apprenticeship in their trades; but to teach the branches related to these, with such practical manipulation of the implements used in them that the graduate shall become familiar with them and be prepared to enter upon the further pursuit of his chosen calling with a training that fits him for that particular business and insures to him success. Underlying all these must be substantially the same preparatory work. They must all rest upon a thorough knowledge of the elementary mathematics, science, history, geography and the English language. No matter what may be the subsequent line of special study, these must precede and form the basis.

Just as upon the several branches of a vigorous fruit tree, different and related varieties may be grafted and successfully grown, each drawing its nourishment through the same trunk from the same source, so the several courses of study which fit men and women for the duties of life, radiate from the foundation work given in the preparatory department of the college. Among these courses may be named the following: Course in agriculture and and horticulture, containing much science practically applied and less of mathematics; course in mechanical en-

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gineering containing a preponderance of drawing and applied mathematics, a moderate amount of science, and a practical acquaintance with the tools of the carpenter shop, the forge and the foundry, and enabling young men to enter on a subsequent course that may fit them for great mechanical enterprises; a course in civil engineering, similar in the theoretical part, in some respects, to that of mechanical engineering, but leading to an entirely different profession in life. The civil engineer will locate great lines of railroad, theoretically tunnel mountains, span wide streams with magnificent bridges, conceive and plan ship canals and ship railroads. The mechanical engineer directs the artisan whilst he constructs the massive engine and applies its power to the overcoming of great resistences. In an indefinite number of ways he uses the principles of mechanics in the construction of machines for the performance of a great variety of labor. The course in science contains a well balanced proportion of mathematics, literature, English, modern language, and science. It gives no strong predilection towards any special pursuit in life, but equips the well rounded man—the one for general purposes—so to speak. The course in literature and art, embracing less of mathematics and science, much more of language and history, and an acquaintance with the literature and art of all ages, brings the student into contact with the most cultured minds of the present and the past, fits him for the responsible position of the journalist and author, and constitutes a safe counsellor in the affairs of citizenship. The commercial

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course, much more limited in its scholarship, fits students for responsible and useful positions of trust, and enables them to begin to realize earlier on their investment.

Without rising to the dignity of a "course," several branches of industry should have their rudiments taught theoretically and practically applied in this college—such as telegraphy, stenography—or its successor in art, whatever that is to be—type-setting and the manipulation of the furniture of the printing office—and additional for young ladies, a scientific and practical training in domestic and household economy. Add to these the instruction in military tactics, and the opportunity of such students as desire it for obtaining a deeper knowledge of the "other classical and scientific studies," and the college of agriculture and mechanic arts at once becomes an institution so broad and practical in its training as to justly command the respect and support of all good people. At the beginning of next year—September 1891—this institution will be prepared to offer the inducements outlined in this article. Its equipment will consist of an elegant building well adapted to its purpose; a faculty of specialists chosen for their adaption to their particular fields of work; an excellent farm, on which, under the direction of a very experienced agriculturist and horticulturist, are being exemplified the principles expounded in the lecture room; shops supplied with all the appliances for training in mechanics; instruments for practical work in civil engineering; chemical, physical, and physiological apparatus for illustration and use; an entomological department fully equipped; a reading room supplied with an abundance of the best scientific and literary periodicals,

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and a library containing many works for reference and general reading. To all of these additions are being continually made.

Underlying all, above all, and enclosing all must be the character of the student. Real success in life can be attained only through the possession of a noble moral character. "Character is what a man is." "Character is a bunble of habits." The man must *be* virtuous; must *be* true; must *be* good. His habits are the index of what he *is*. Without the pure and beautiful environment of an unblemished character no amount of educational culture can bring greatness. Every effort, no matter how honorable or commendable in itself, will eventually terminate in most bitter disappointment. Hence it should be, and is, the constant care of the faculty, by patient and persistent means, to build in the student this most essential of all things—the foundation—the keystone of the arch—the crown of the pinnacle—the sum of all—a good moral character.

HIRAM HADLEY.

## MESILLA PARK.

### Its Attractions For the Home Seeker, the Health Seeker and the Student.

Mesilla Valley is the local name for that portion of the Rio Grande valley in southern New Mexico which surrounds Las Cruces and Mesilla. At this point the valley is unusually wide and the soil is noted for its great fertility. For years the river has been pouring into its lap the rich alluvial deposits and stony mountain washes robbed from the valleys and hills of the north. The mild and genial climate which makes it a health giving and health restoring spot for man, also makes the widest range of production possible. The attractive nature of this favorable spot was appreciated by the aboriginal inhabitants and the Spanish conquistadores, more than three centuries ago, found here an industrious population tilling the soil and reaping abundant harvests. The hardy American pioneers in their quest for Eldorado found the descendants of the conquistadores engaged in their peaceful avocations, and many of them cast their lots here. Now orchards, vineyards and fruitful fields testify to the great

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fertility of the soil. In the center of this far and long famed valley is located

MESILLA PARK.

The tract known by this name embraces some of the choicest land in the valley, and it is destined to be one of the most attractive suburban villages in the southwest. It is located about two and one-half miles from Las Cruces. It is on the main line of the Atchison, Topeka & Santa Fe railroad, has a depot, telegraph and express offices, and all regular trains stop there. This tract adjoins the grounds of the agricultural college of New Mexico and offers great advantages to those who desire to locate where they can furnish their children with the best school advantages. It is laid off into lots and five and ten acre tracts. The natural advantages with the attraction of a free institution of higher education will make the place much sought for, and soon neat cottages and beautiful villas surrounded by fruitful orchards and vineyards will spring up in every direction. The Rio Grande Land Company have control of 2,000 acres of the choicest improved and unimproved fruit and farm lands. On the Mesilla Park tract they have erected a number of modern cottages which are for sale or rent. The company offers lots and improved and unimproved lands at reasonable prices and on easy terms, with low rate of interest on deferred payments. Property here is bound to increase in value very rapidly. There is no experiment in making purchases of land here and building beautiful homes. The productiveness of the locality is well established and it is one of the most important fruit shipping points in the territory. The health seeker will find here a good sanitarium where the winter months can be passed without discomfort; and it offers special inducements to students and especially to those who desire to give their children the advantages of a higher education and still have them

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surrounded by the restraining, refining and elevating influences of the home circle. In no portion of the southwest can homes be made so attractive or be surrounded with what is most beautiful as well as profitable in nature as at Mesilla Park. Parties looking for desirable places of residence should correspond with J. K. Livingston, general agent of the Rio Grande Land Co. at Las Cruces, N. M., and fully investigate the advantages offered by Mesilla Park.

### The Pulsometer Pump.

The board of regents of the New Mexico agricultural college purchased the Pulsometer pump to supplement the ordinary methods of irrigation on the college farm and United States experiment station after careful investigation occupying several months. The concensus of opinion of the experts they consulted was in favor of this pump. It will repay those contemplating the purchase of a pump for irrigation or any purpose requiring the handling of water in large quantities to read the advertisement of the Pulsometer Pump Co. in this issue.